



# **HAZARDOUS WASTE ACCUMULATION POINT**

**TSP 05-2-7500**

# References

- TM 38-410, Storage and Handling of Hazardous Materials, Jan 99
- TG 217, Hazardous Material/Hazardous Waste Management Guidance for Maneuver Units During Field and Deployment Operations, Oct 2000
- UFC 4-451-10N, Design: Hazardous Waste Storage, 16 Jan 2004
- 40 CFR, Environmental Protection Agency Regulations
- MIL-HDBK-1190 ,Facilities Design and Design Guide, Sep 87



# When is a Waste Hazardous?

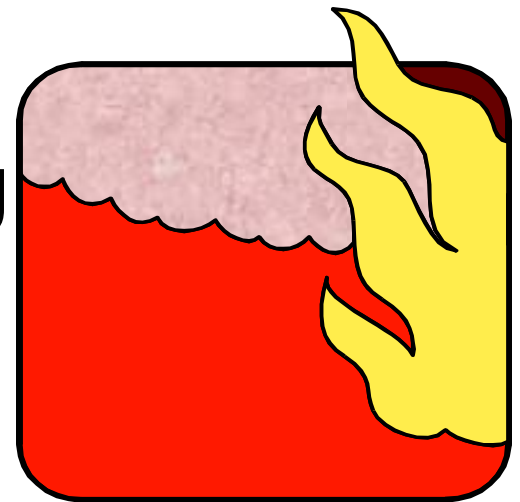
There are three ways a waste can be regulated as hazardous:



- Meets the definition of one or more of the hazardous waste characteristics. The four characteristics are ignitable, corrosive, reactive and toxic
- Is listed by EPA as a hazardous waste in 40 CFR 261

# Characteristic of Ignitability

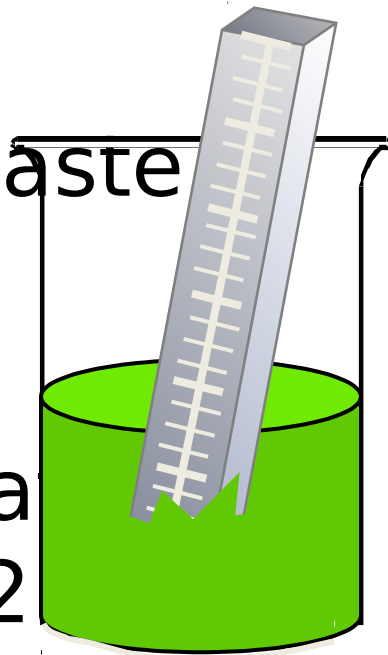
- A liquid having a flashpoint of less than 140° F
- A non-liquid which causes fire through friction, absorption of moisture, etc
- An ignitable compressed gas
- An oxidizer



# Characteristic of Corrosivity

A solid waste exhibits the characteristic of **corrosivity** if a representative sample of the waste is:

- Aqueous, with a pH less than or equal to 2.0, or greater than or equal to 12
- Liquid and corrodes steel at a rate greater than 0.25 inches per year



# Characteristic of Reactivity

A solid waste exhibits the characteristic of **reactivity** if a representative sample of the waste:

- Is normally unstable and readily undergoes violent change
- Reacts violently with water
- Forms potentially explosive mixtures with water



# Toxicity Characteristic

**Toxicity** is the degree to which a substance is able to damage an exposed organism. Toxicity can refer to the effect on a whole organism, such as an animal, bacterium, or plant, as well as the effect on a substructure of the organism, such as a cell or an organ, such as the liver.

Environmental hazards tend to focus on degradability, bioaccumulation and aquatic toxicity.

A solid waste exhibits the characteristic of toxicity if the extract sample of the waste contains any of the contaminants listed in

# Common Facility/Unit Waste Streams

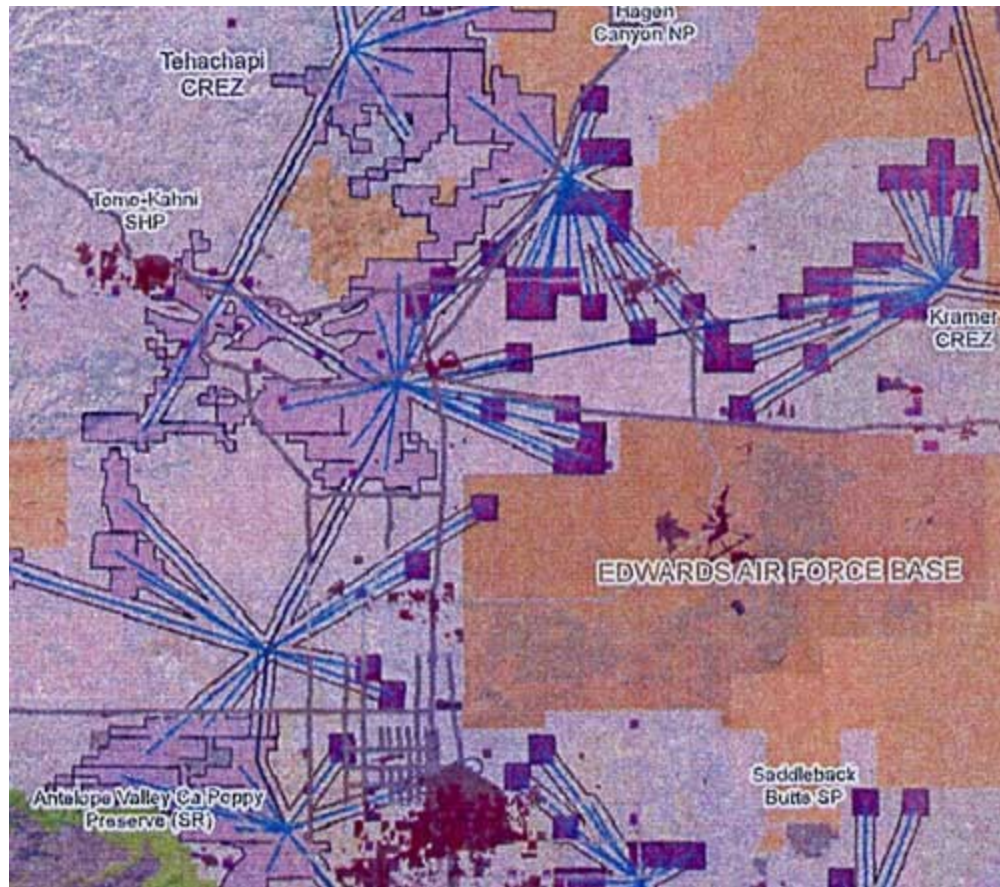
- ✓ **Contaminated oil**
- ✓ **Used batteries and acid**
- ✓ **Used solvents**
- ✓ **Contaminated fuels, when non-recyclable**
- ✓ **Discarded fertilizers, pesticides and herbicides**
- ✓ **Expired or discarded paints, inks, acids and oxidizers**
- ✓ **Mixed waste**
- ✓ **Used brake fluids**
- ✓ **Used filters**
- ✓ **Discarded explosives**
- ✓ **Lead tire weights and battery connectors**
- ✓ **Weapons cleaning material (all)**
- ✓ **Painting material**
- ✓ **Expired shelf-life material**





# Learning Objective 1

- Planning and Site Selection



# Planning

In planning any waste collections area, keep in mind the allowable waste quantities and waste accumulations times that are allowed.

- A Hazardous Waste Accumulation Point (HWAP) area meets the specific requirements of a particular generator. Maximum accumulation time for any one container is generally 90 days.
- A Hazardous Waste Storage Area (HWSA) is a centralized accumulation area designed to hold larger amounts of hazardous waste from one or more generators and is typically permitted.

# Siting

Waste collection areas may be indoors or outdoors and they must:

- Be formally designated area.
- Be sited away from vehicular traffic, sewer drains, storm drains, and property boundaries
- Be located as close to the point of generation as possible.
- Provide adequate space for aisles around each container

It is also recommended that the area be:

- Sited on a non-porous surface, such as specially coated concrete
- Secured from unauthorized entry. Consider a room or fenced-in area that can be locked.
- Protected from exposure to sun and rain. This can be accomplished by choosing an indoor area, or covering the

# Critical Areas

A minimum buffer zone of 15 meters between the HW storage building and adjacent inhabited areas, facilities, and waterways.

Evaluate the following factors when selecting a site for a HW storage facility:

- the quantity and type of hazardous material stored
- storage retrieval system (e.g., racking, shelving, and stacking)
- automatic fire suppression systems
- size of doors and windows and other openings on adjacent buildings
- building construction materials (including fire walls and doors)
- the relative height of adjacent buildings
- prevailing winds
- topography

Conduct a risk assessment and appropriate hazard analysis for accidental releases and day-to-day operations. Use sound scientific and engineering principles up front during planning and

# Accessibility

The facility shall be located where there are access roads of adequate load-bearing capacity and where routine through residential areas with



# Communications

- Telephone or wireless communications shall be provided.
- Internal communications should consist of a master and stations receive and talk, if the size of facility warrants (40 CFR 265.32).
- Emergency alarms shall provide the capability of activating an emergency alarm from each storage area and office. The sprinkler alarm system shall be equipped to transmit alarms to the fire station or to a suitable location that is continuously manned when a local fire station is not available.

# Security

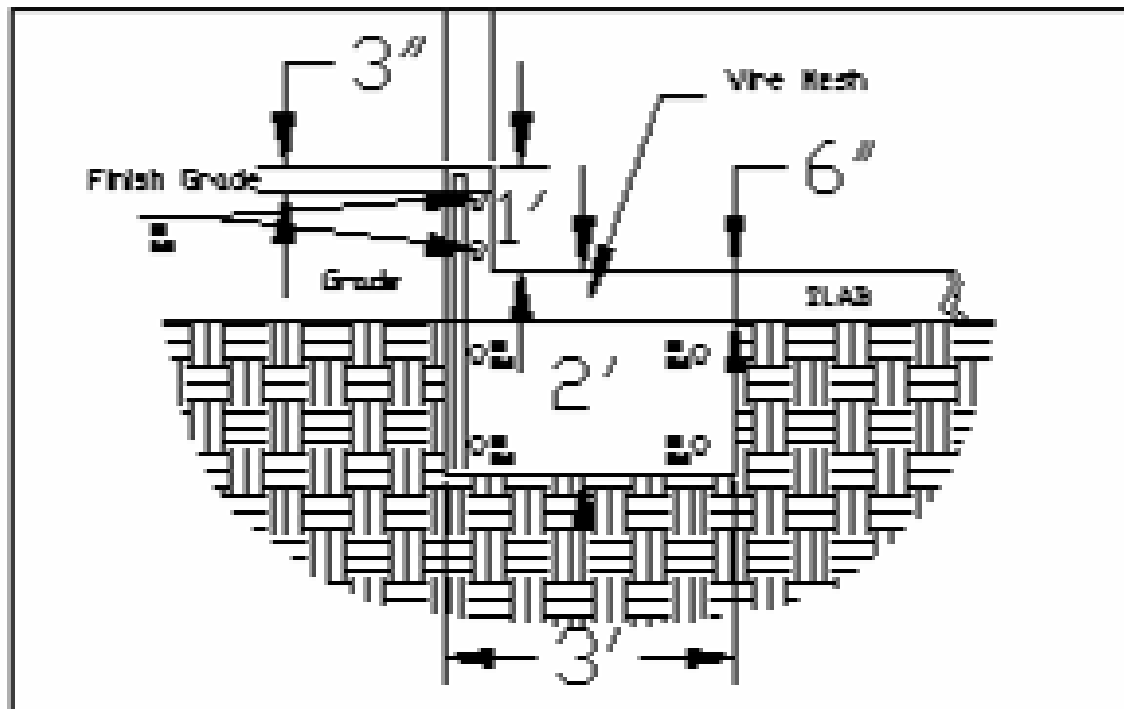
The fence for the storage area shall be 15 feet from the outside perimeter road of the facility.

Specifically:

- Height. The standard height of a security fence is eight feet (2.4) meters).
- Fence Placement. No fence will be located so that the features of the land or structures defeat its purpose by allowing passage over, around or under the fence.
- Barriers. Buildings, waterfronts and other barriers used instead of (or as a part of) a fence line must provide equivalent protection to the fencing required for that area.

# Learning Objective 2

- Design Standards



**EDITOR PLAN**  
SCALE 1" = 1'-0"



# Design Standards

The performance standards for most hazardous waste management units vary depending on whether the unit is permitted or is operating under interim status while in CONUS.

If in the theater of operations (T.O.) the facility is not required to be permitted.

OCONUS will depend on the host nation requirements.

# Construction Materials

## Building

- must be constructed of man-made materials
- must provide sufficient structural strength to prevent unit failure
- must be completely enclosed (floor/walls/roof)
- must have a decontamination area for personnel, equipment, and vehicles

## Doors/Windows

- must be placed so as not to come into contact with waste
- must have dust controls to minimize fugitive emissions

## Contact Surfaces

- must be chemically compatible with waste

## Primary Barrier (floor)

- must be constructed of man-made material (typically concrete)

# Construction Materials (for free liquids)

In addition to the previously listed materials, the following additional design criteria for containment buildings used to manage liquids follows.

**Primary Barrier** : must be sloped toward liquid collection device

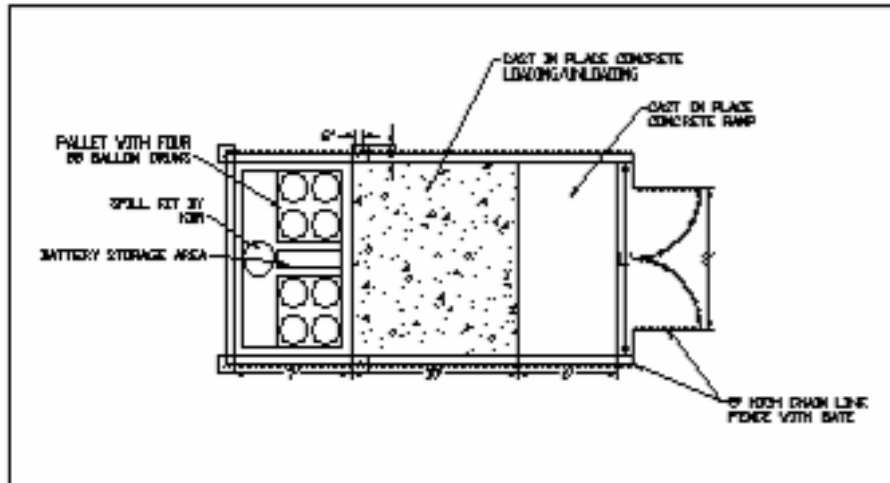
**Liquid Collection System**: must allow for removal of waste for proper RCRA management

**Leak Detection System**: must detect release of waste at earliest practicable time

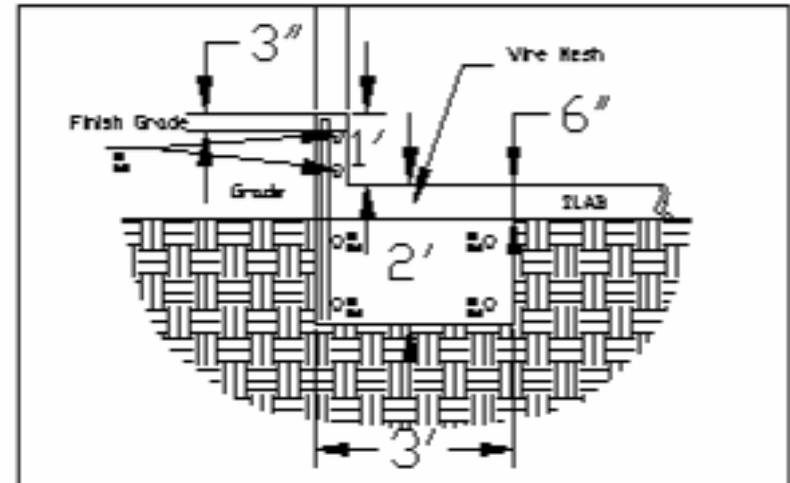
**Secondary Barrier**: must be structurally sound and chemically resistant to the waste,

- must contain 110% volume of largest tank and allow for removal of accumulating wastes,
- is required only for "wet areas" within the unit, but recommended for both "wet" and "dry areas"

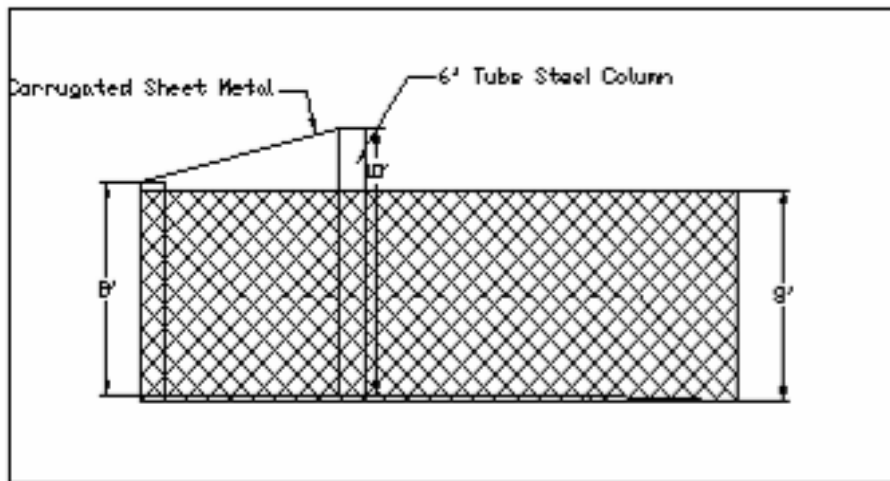
# Typical HW Accumulation Point Design



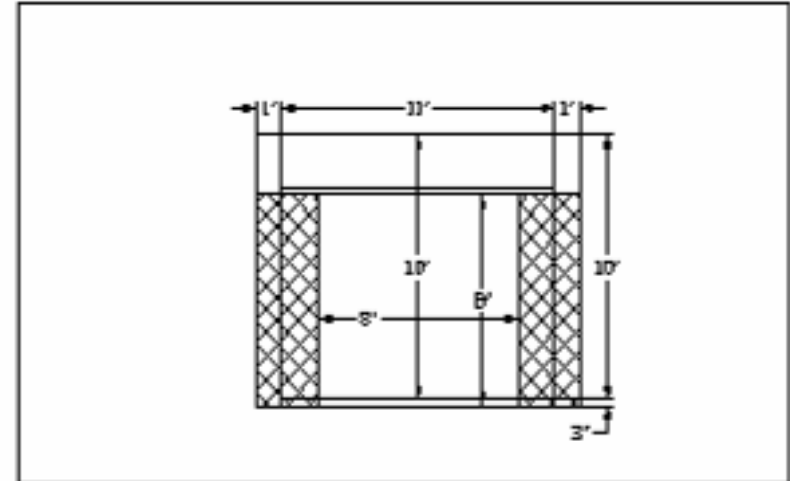
**FLOOR PLAN**  
SCALE 1" = 4'-0"



**FOOTER PLAN**  
SCALE 1" = 0'-6"



**SIDE ELEVATION VIEW**  
SCALE 1" = 4'-0"



**FRONT ELEVATION VIEW**  
SCALE 1" = 4'-0"

# Access and Exit

Access to and exit from the storage facility will be restricted to periods when the facility is manned. During periods when the facility is not manned, entrance shall be completely restricted either through locked gates, door, or both. A sign visible from 8 meters (25 feet) shall be placed on all access roads and entrances to the storage facility. The sign shall have the legend: "Danger Unauthorized Personnel Keep Out," signage will also identify the area and include contact information: name and phone extension.

# Learning Objective 3

- Operations



# Operational Guidelines

The facility design must be closely coordinated with the using agency's operational plan and requirements, as well as the comprehensive and contingency plans (fire protection, spill containment, disaster preparedness, etc.) of the host installation.

# Personnel Requirements

- Training for personnel
  - Handlers
  - Accumulation site managers
  - Packagers/Shippers
  - Spill response teams
- Some of this training will require update/ refresher training
- Certification must be kept on file
- Personal Protective Equipment (PPE)
  - Available for personnel
  - Training on PPE use and maintenance



# Secondary Containment

Secondary containment is required for liquid hazardous waste or other waste that might be released into the environment, such as dusts, powders, and shavings.

Planning for adequate containment includes consideration of capacity as well as waste compatibility requirements.

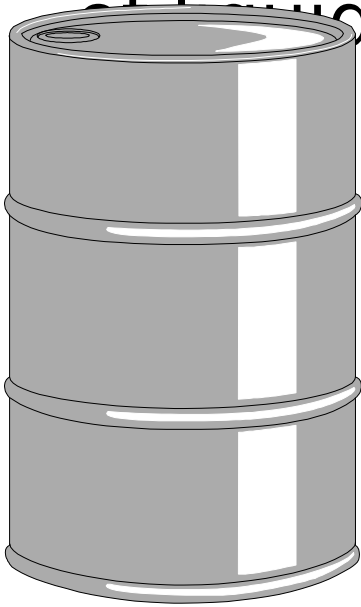
Secondary containment can be constructed or it can be purchased.

# Containers Storage

Only non-leaking containers that are safe to handle and correctly labeled shall be stored in the facility. The containers shall be stored according to type and in such a manner as to facilitate inspection and removal with a minimum of handling. The quantities and type of storage will dictate the space available, must be specified during the design, and must be adhered to by the operator.

# Filling Containers

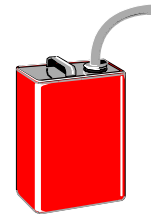
- Check for headspace to allow expansion of liquids



55 gallon drum  
CONUS: ~ 5 inches



5 gallon container  
CONUS: ~ 3 inches



1 gallon container  
CONUS: ~ 1 inches

HOT CLIMATES: 6-8 inchesHOT CLIMATES: 4-7 inchesHOT CLIMATES: 2-4 inches

When filling containers with flammables, use proper  
grounding

# Container Management

- Do not stack drums more than 2 high
- Do not stack flammables
- Ensure there are at least 3 feet between containers (aisle space)
- Inspect containers routinely



# Container Management

- Protect containers from weather
- Store in approved cabinets, rooms and buildings
- Ensure containers have lids and are kept closed when not being filled



# HW Recordkeeping

- Employee training/certifications
- DD Form 1348-1, Disposal Turn-In Document
- MSDSs
- Waste Profile Sheets (DRMS Form 1930)
- Accumulation Logs
- EPA Hazardous Waste Manifests
- DD Form 836, Dangerous Good Shipping Paper
- DD Form 626, Motor Vehicle Inspection (Transporting Hazardous Materials)



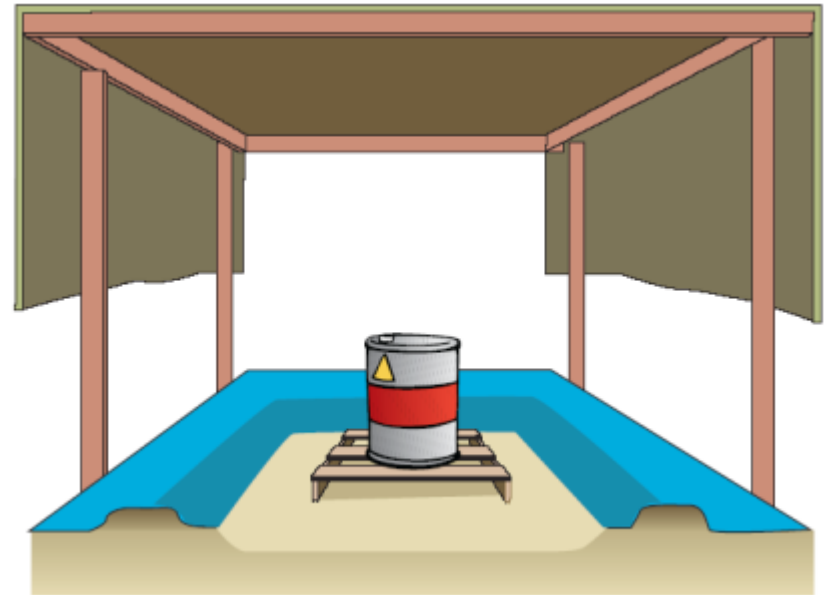
# HW Accumulation Point

- Containers cannot be larger than 55 gallons or 1 quart for acutely HW
- Accumulation limits: total of 55 gallons HW or 1 quart acute HW
  - \*Missouri law – 55 gallons HW or 1 quart acute HW
- Containers are located near the HW point of generation
- Containers controlled by generator
- Containers must be clearly marked
- Accumulation Start Dates (ASD), check your SOP
  - IAW Federal law, ASD starts when container is full
  - States may vary: Missouri law, ASD starts with first drop
- Full containers must be turned in or moved to an Accumulation Area within 72 hours (includes non-business days)



# HWAP

- Secondary Containment
- Labeled
- Signage
- Accumulation log
- Inspection
- Cover
- Spill PPE and equipment





# Safety - Eyewash

Eyewash/deluge showers will be provided within 10 seconds and within 100 feet of travel distance for both long- (HWSA) and short-term (HWAP) storage facilities



# Safety - Ventilation

All generally occupied areas (administrative, latrines, etc.) shall have positive-pressure ventilation in enclosed spaces. Negative pressure shall be maintained in all enclosed waste storage areas.

Storage and/or transfer areas containing materials hazardous to health shall be ventilated.

# Safety - Fire Protection

Fire protection shall be provided as required by Construction Criteria Manual, DOD MIL-HDBK-1190.

Since reactive wastes may react violently with water, the storage area for these wastes shall be protected by a gaseous-type system.

# DLA Recommended HW Segregation



# HW Collection

- Vehicles moving/transporting HW must have appropriate DOT placards.
- Vehicle should be loaded for maximum container stability and segregation of incompatibles.
- Vehicle driver (even across the base camp) should have a list of what is being carried (manifest/shipping paper).

# Inspection Requirements

Routine inspection requirements are specific to how the area is designated.

Requirements are the following:

- HWAP and all containers in any waste accumulation area must be inspected weekly by the designated person. Inspection items include tracking container return dates and noting the condition of each container and any secondary containment. Visual inspections suffice, but inspections should be documented.
- HWSA must be inspected weekly by the designated person and the inspection must be documented and retained on record for three years to ensure that the area is under supervision.
- More frequent inspections may be necessary in extreme weather conditions.

# Maintenance Requirements

The designated person in charge of a hazardous waste accumulation point area must:

- Keep the area free of debris and trash and schedule housekeeping, as necessary.
- Pump rainwater out of secondary containment immediately. If the rainwater has become contaminated, it will need to be evaluated to determine the proper disposal method.
- Inspect all containers labeled “hazardous waste” for leaks. If a leak is found, immediately arrange a spill cleaned in accordance with the unit SOP.
- Verify that the safety equipment remains functional and that safety information is current.

# Emergency Preparedness

Each hazardous waste collection area must be included in a facility emergency plan (FEP).

## Response to Releases

If a release is discovered during an inspection, the owner or operator must remove the affected portion of the unit from service and take all appropriate steps for repair and release containment. Upon completion of all necessary repairs and cleanup, a qualified, registered, professional engineer must verify that the plan submitted to the implementing agency was followed.



# Spill Response

Absorbent Material for Spills. All facilities shall maintain an adequate supply of compatible absorbent material for application to liquid spills and leaks. Sufficient storage area shall be provided for absorbent material.



# Reduce your Hazardous Waste Management

- Hierarchy
  - Avoidance or alternative products
  - Reuse, Recycle, Reduce
  - Treatment
    - Physical
    - Chemical
    - Destruction
  - Disposal